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# OPHTHALMOLOGY.

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## ORIGINAL ARTICLES.

### IS THERE EXTRA-CRYSTALLINE ACCOMMODATION?

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DONDERS, von Graefe, von Helmholtz, are names that stand for intellects so overwhelming, for scientific investigation so accurate, that the ordinary mortal is trebly handicapped when he presumes to put in question any statement which they have made. Yet the world would not be progressive if one should not seek for error, as well as for truth, and it were wrong blindly to accept as final what a great man says; still worse to accept as truth what a great man frankly states to be only a hypothesis. Some such reasoning as this, it is presumed, actuated Tscherning, for example, when he conceived the theory, and instituted the experiments which led to his series of articles[1] calculated to refute the generally accepted explanation, given by von Helmholtz, relative to the changes occurring in the crystalline lens during accommodation.

Our text-books of ophthalmology positively deny, entirely ignore, or put aside with slight reference, as unworthy of con-

[1]Archives de Physiologie, Norm. et Path., 1894–1895.

sideration, the possible existence of any means whereby the vision can be adapted for varying distances except that through the intervention of the crystalline lens, and this, in spite of the fact that most of us are being continually confronted by instances that argue differently, viz.: aphakial eyes, and eyes supposed to have reached the age of total presbyopia, with normal vision for distance, and reading J. No. 1 at 8″ with the same lens,—that, too, without looking obliquely; when we see persons with high degrees of hyperopic astigmatism making pressure with the finger and thus correcting their own error of refraction; when we reflect that the usual explanation of the so-called "second sight," that of increased index of refraction, is by no means satisfying, since eyes so endowed are not necessarily myopic. Moreover, the surprise so often expressed by oculists at the power of accommodation remaining after thorough use of atropine. All these, and other things of like nature, do not tend to increase our faith in the proposition that accommodation rests solely with the crystalline lens. Nor is it altogether rational, after putting such cases as just mentioned to severe tests, the results of which all go to disprove the correctness of said proposition, to assume that, after all, certain errors *must* have crept into our observations.

*Apropos* of the latter, among the few cases published in this country of apparent accommodation in the aphakial eye, was the translation, by Knapp, of an article by Dr. Paul Silex, of Berlin, in the former's *Archives*, Vol VIII, No. 3, 1889. The author first demonstrated that there was really great accommodative power in the eye by eliminating all elements of trickery, even to that of narrowing of the palpebral fissure (which, by the way, is a genuine means of accommodation.) Then he submitted the cornea to an ophthalmometric test, reasoning that, if the accammodation were due to elongation of the globe by external muscle-pressure, the corneal images would show it. Whereupon, although the eyes converged, *the pupil contracted*,[2] and "the boy alleged" that he could read the test type, the corneal images remained unaltered. That was conclusive to Dr. Silex. That eye was absolutely devoid of adaptability for distances, and he fell back on the proverbial insidiousness of certain inaccuracies.

*So long as the near point is approached to the eye, or more*

[2]This phrase was not italicized in the original..

*distinct vision is attained, provided this be not accomplished by means of the interposition of a convex lens, or the addition of a convex lens to one already interposed, or by looking obliquely through a converging medium, no matter how else the thing is done, whether by factors working in the eye or others around about it, this is accommodation.*

There is too great a disposition on the part of those more or less familiar with the eye to regard that organ in the light of an ordinary optical instrument; neglecting the fact that it is a living, subtle, almost a thinking, thing. It is too far removed from an artificial product, be the device never so cunningly fashioned in imitation, to be accused of a resemblance. Pervading its seemingly mechanical functions there is a hidden, penetrating instinct. In no others of its offices does it act less unlike a machine than in those of accommodation and refraction. Yet, even in these, there can hardly be claimed for it an analogue. In those very features that would tempt comparison with the camera, for instance, the tritest of all the "likenesses," its lids, (cap), its cornea, (first part of lens), its light-proof walls, (box), its crystalline, (second part of lens), its iris (stop), its image-screen, (ground glass), how vastly different!

Taking these parts in their order, and leaving out of count the constantly changing convexities of the lens as not pertinent to the subject, conspicuous among the differences alluded to, and serving, on occasion, much or little to qualify the visual perception, one may cite:

First, the lids. Too much has been said on this subject, and the fact is too commonly acknowledged, that the eyelids act as accommodators, *i. e.*, by partly closing, to cut off diffusion circles, that it needs to be further insisted upon here.

Second, the form and substance of the cornea. It is more refractive towards the periphery than at the centre. Widening or dilatation of the pupil induced by our efforts to see in obscure light is, owing to this peculiarity, accomplished without loss of acute vision, as the outer rays of the enlarged pencil of light get an extra bending and increased circles of diffusion are prevented. It is this quality of the cornea, as has been indicated by Dr. Jackson, of Philadelphia, which sometimes gives inconvenience, in poor light, to those of our hyperopic patients, whose total error we have corrected. For then the conditions are such that the extra bending at the periphery

causes myopia, and the individual is helpless to see distinctly, not even being able to call to his aid the narrowed palpebral fissure, which would too greatly reduce the illumination. Then, too, the cornea is a compressible meniscus, wherefore, as unquestionably happens, at times, in low degrees of astigmatism, more distinct vision is gained by "nipping" of the lids. Thus does the cornea become a factor in accommodation.

Third, the walls of the eyes are yielding and elastic, and are closely embraced by at least seven strong muscles, the four recti, the two obliques, and the orbicularis, whose contractions and relaxations have known, and, doubtless unknown, influences to modify the curves and dimensions of the globe. Among the known are those of the orbicularis, and among the unknown those of the other six.[3] It has been denied,—by Panas for one,—that the obliques, acting in unison could compress the globe, as their action would be to cause only divergence instead. It must be remembered, however, that their strain, pulling from points well forward, would have but comparatively slight leverage to rotate the eye outward, the antero-posterior axis being already relatively convergent, and the tension of three powerful recti muscles operating to keep it so. It is possible, also, that contraction of the ciliary muscle may produce constriction of the globe in its particular zone, thereby affecting an appreciable recession of the posterior pole of the eye. Especially might this occur in the eyes of the young, precisely the class of subjects in which a collateral accommodation, that form associated with aphakia, at least, has been most often observed. Considered in the light of the knowledge that the moving backward of the retina of only .28 mm. in hyperopia, .31 mm. in emetropia, and .38 mm. in myopia is equivalent to the shortening of the focus by one dioptric such accommodation appears neither wonderful nor absurd. Demonstrations to the contrary, by means of the ophthalmometer, taking cognizance, as they do, merely of decided alterations in the corneal images, might be misleading. One could conceive a certain lengthening out as being limited

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[3] Février, Annales d' Oculist., February, 1892, thought to have demonstrated that the obliques have the power to lengthen the antero-posterior axis. The same author has also shown how pressure of the orbicularis, in cases of myopia, may shorten this axis.

to the posterior, thinner, half of the globe, though the squeezing force were brought to bear nearer the anterior portion, in which event a change in the cornea might not be apparent. There are those who, in using the ophthalmometer, claim to have seen the changes occur in the corneal images consequent upon efforts of accommodation.

As to the crystalline,—the fourth part of our camera (sic),—it concerns us but little in this connection. Suffice it to say that it is a most extraordinary lens, passing from phase to phase in its nature, keeping in touch, as it were, with the requirements of its possessor's age; complex beyond present perception in form, substance, and working. The papers of Tscherning, just referred to, and the curious powers of discrimination, in matters of the transmission of light and heat, ascribed to it by some recent writers, are but fresh evidences of its unknownness; and it would not be surprising to hear of its having accommodative properties even in repose.

Fifth, the iris. While, to all outward semblance, this member of the photographic outfit holds a station most nearly fulfilling the conditions of a purely mechanical appliance, it would seem to be *that* one of whose telling performances the average oculist takes least note, and by which he sets least store. The humblest manipulator of the poorest hand-camera, even the lowly being who aspires only to "press the button," recognizes the tremendous value of his "stops." Hardly a tyro among the amateurs who, if he is the lucky owner of a lens whose focal distance is 15 centimetres, suppose, but will tell you that, with about the largest stop, (say $^{f}/_{5}$) the nearest point at, and beyond which, it will focus all objects is 22.5 meters. Whereas that, with about the smallest opening (say $^{f}/_{256}$) this point approaches to within 44 centimetres, and that, with a "pin-hole" aperture, the focus is practically infinite. The iris, with its infinitely varying pupillary area, does all that the photographic diaphragm does and more. Yet how many authors are there in matters of the eye, who tell, although, mayhap, they are well aware of it, to what extent the rôle of accommodation is played by this perforate membrane?

Sixth in sequence, comes the receptive screen where the image is made. Here, in lieu of a simple, fixed surface, *whereon* is mirrored a "counterfeit presentment" in length and breadth alone, is a profound and amazing labyrinth, *wherein* the assem-

bling rays are caught, and resolved into the impulses which give us sight. The picture here is indeed unique, and inimitable—it has the third dimension—and one-half a millimetre, or less, in such a creation, is deep—for in it there is hurrying movement, strange chemical energy, curious analysis, and abstruse discernment—in short, the true life. Who shall say that the gathering of light there must conform to the identical conditions and limitations which are requisite for an ordinary image? Small wonder if there be not accommodation in the retina itself!

The bibliography of the accommodation of the eye other than such as relates to that effected through the great factor, the crystalline lens, for and against combined, is surprisingly scant. There seems to have been a tacit agreement among ophthalmologists that Thomas Young and von Helmholtz had left but little unsaid: and, relatively speaking, such is really the case. The great majority of those who have written concerning extra-crystalline accommodation have been, naturally, of the German nationality; as, for instance, Graefe,[4] Förster,[5] Schlösser,[6] Schneller,[7] Sattler.[8] As having a direct bearing on the subject might be added papers bp Février,[9] in France. These are about all.

In concluding, I wish to make brief mention of two cases, lately examined by me, which illustrate phases that have some relevance to points herein touched upon, which, in fact, constitute my apology for writing this article.

Miss T., aged 63 years. Perfectly healthy eyes.

R V. = $^{20}/_{L}$; $^{20}/_{XX}$ w. + 2 D. s. ⌒ + 1 D. cyl. ax. 180°.
L. V. = $^{20}/_{L}$; $^{20}/_{XX}$ w. + 2 D. s. ⌒ + 0.75 D. cyl. ax. 180°.

With the same glasses, and looking straight, with eyes well open, reads J. No. 1 at 8″.

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[4]Graefe.—Saemisch. Handb. Vol. v., p. 144.

[5]Förster,—Zehender's Klin. Monat, 1872.

[6]Schlösser—Sitzungsb. f. Morph. u. Phys., München (92) '93, viii, p. 131–134.

[7]Schneller.—Graefe's Archiv., Vol. xxxii.

[8]Sattler.—Graefe's Archiv., Vol. xl.

[9]Février.—Annales d' Oculist., February, '92, February, '93, and S ptember, '94.

Purkinje's images fail to show any change during accommoda tion. The pupils are quite active.

Andrew H., aged 12 years; originally double lamellar cataract. Both lenses removed through discissions by Dr. Montgomery, of this city, at the Illinois Charitable Eye and Ear Infirmary, over a year ago. Clear, round, movable pupils.

R. V. $= {}^{1.5}/_{cc}$; ${}^{20}/_{c} +$ w. $+$ 20 D. Not improved by cyl.
L. V. $= {}^{3}/_{cc}$; ${}^{20}/_{LXX} +$ w. $+$ 20 D. Not improved by cyl.

With the same glasses, looking straight through them, with eyes well open, ***reads J. No. 1 at 5″***. The pupils contract very considera bly in accommodation. Did not test with the ophthalmometer.

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## IS THERE A LAYER OF PIGMENT EPITHELIUM CELLS BETWEEN THE CHOROID AND RETINA?

BY ADOLF ALT, M.D., ST. LOUIS, MO.

[*With Micro-Photographs.*]

IN Volume XXIV, No. 3 of *Knapp's Archives*, G. Lindsay Johnson, of London, has published the first of a series of articles entitled, 'Observations on the Macula Lutea." These excellent articles are illustrated with most beautiful photographs.

Among the results of his observations there are, however, a number which are so startlingly at variance with what has thus far been generally considered to be correct, that they necessarily arouse a renewed study in this most interesting field.

In his observations on the hexagonal pigment layer he states: "As to the hexagonal pigment layer itself, it is permeated to such an extent with pigment, that it is excessively difficult to distinguish its structure clearly unless very thin sections be made.

"It seems to me that what have until now been taken for the nuclei of hexagonal cells are independent spherical corpuscles (spherules)."

And further on: "The fact that in some cases these

spherules are entirely detached and float free in the field of the microscope, the fact that *I never have seen hexagonal cells isolated* or even partially detached from each other along the line of the septa, and lastly the fact that spaces can frequently be seen around these spherules when *in situ*, all point to their not being nuclei."

In recapitulating he goes on to say: "The membrana vitrea is the limit of the choroid, then follows a space, then the membrana terminans retinæ, *then a gelatinous layer in which spherules lie surrounded by embedded spherical pigment granules*, lastly the acicular pigment crystals lying in irregular clusters in a plexus. This plexus is a direct continuation of the bacillary layer," etc.

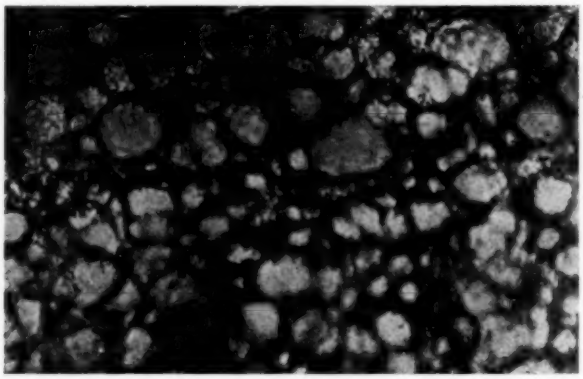

FIG. 1.

One of the points concerning which I think we must differ with this description, is the one relative to the existence or non-existence of a hexagonal pigment cell layer consisting of distinct and separate cellular elements.

In spite of the scholarly investigations of Johnson, it seems to me that such a layer of cells does undoubtedly exist and that his spherules are after all the nuclei of these cells.

The regularly outlined and sharply defined hexagonal pigment-cells as they are usually drawn in the text-books, it is true, are but rarely seen and (see Figs. 1 and 2) the two photographs here given, taken at random from a large number of specimens show what is most frequently seen, when the cho-

roid, with the pigment layer undisturbed, is put under the microscope.

We see then an irregular dark network consisting of pigment granules and spiculæ, varying considerably in density and depth of color, which surrounds numerous light spaces of a round or oblong shape. As these light spaces are separated by pigment bands which vary extensively as to their thickness, this membrane present a very peculiar aspect. Sometimes we find only an almost uniformly dense layer of pigment granules pierced, so to speak, like a sieve by light spaces more or less equidistant from each other. In other cases again, the light spaces are considerably larger and barely separated from each other by slender lines of pigment granules.

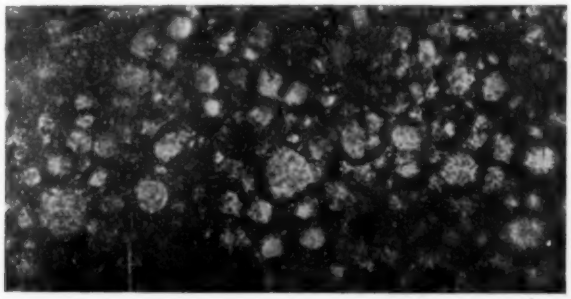

FIG. 2.

It is usually accepted that these light spaces are produced by the presence of the unpigmented nucleus in the cells.

In Fig. 3 I have photographed a different picture. Here the pigment is seen to be also very irregularly distributed and the light spaces are much less pronounced than in Figs. 1 and 2. On the other hand, however, there can, I think, be no doubt as to the fact, that this membrane consists of cell bodies of distinct individuality. It, furthermore, shows that there is a cementing substance between these cells and that the cells may become *separated in the line of the septa.* The shape and size of the cells in this particular specimen varies greatly. Some cells are double and more the size of others and while some have only five angles, others have seven and even eight. The majority are, however, hexagonal.

It is to be noted, that these pictures show the aspect of the inner surface of the pigment epithelium layer from which the retina had become detached during the hardening process, without aid, and that they are not sections.

In explanation of these varying pictures and the comparative rarity of specimens which show, without any interference, the exact shapes of the cells and leave no doubt as to our really having to deal with cells, we must assume that such pictures are due to the physiological migration of the pigment into the interstices between the outer segments of the rods and cones. Naturally, different periods in this process must give different pictures. I suppose, that we have only a chance to see the regular shape and size of the cells plainly when they are physiologically at rest.

FIG. 3.

To make certain that the pigment layer is composed of individual cells with nuclei is not very feasible by simply scraping the pigment layer off the choroid. Such a procedure generally breaks up the cells and is useless.

An undoubtedly convincing proof of the fact that there is a separate pigment epithelium layer, consisting of cells of a more or less regular hexagonal shape, with a nucleus belong-

ing to each cell, is most easily obtained by bleaching the pigment.

When the bleaching has been successfully accomplished, we see in transverse sections a continuous row of separate and distinct low cells, each one with a nucleus lying sometimes closer to the retinal, sometimes to the choroidal surface of the cell.

When viewing the whole layer from its retinal surface, we again see that it consists of individual cell-bodies more or less hexagonal, each with a nucleus which very frequently (almost always) does not lie in the centre of the cell but in or near one of its corners. These cells are divided from each other by some cementing substance. (See Fig. 4).

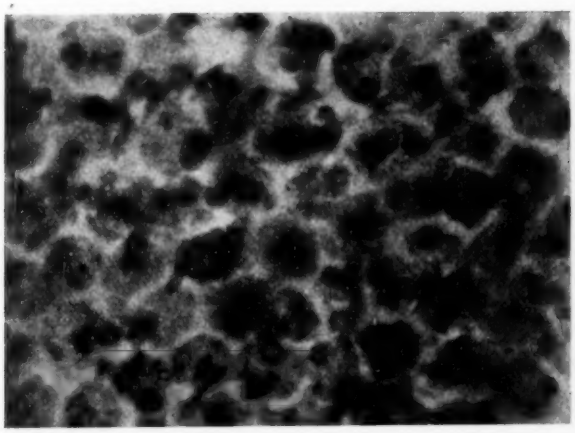

FIG. 4.

Under such circumstances it is not difficult to isolate the cells, as the bleaching process probably destroys the cementing substance between them.

Figure 5 shows a group of such isolated bleached and stained pigment epithelium cells scraped from the choroid with great care, as the cells break to pieces very easily. One cell lies on its edge and shows how they appear in transverse sections.

If this is not convincing enough, Figure 6 will, I think, convince the most sceptical observer. It shows an isolated,

octagonal bleached cell magnified about 1200 times[1] which has two nuclei. I may state that I have also seen now and then a cell with three nuclei.

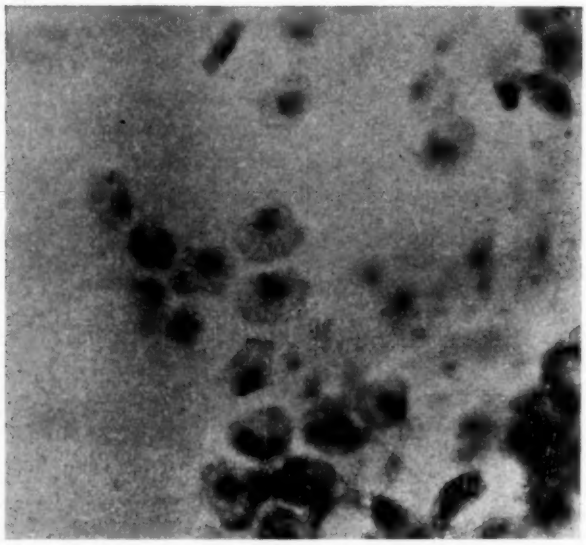

FIG. 5.

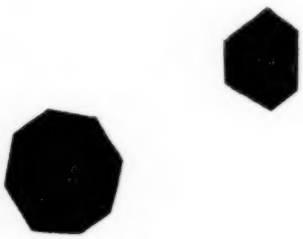

FIG. 6.

From the foregoing, I think, concerning the point here considered, we have good reason to adhere to the older views and to maintain the existence between choroid and retina, of

[1]On account of the high magnifying power the outlines of these cells were not very sharp. I therefore painted the background white which accounts for the unnaturally sharp outlines.

a pigment epithelium layer which consists of individual cells of an almost regularly hexagonal shape and each with a nucleus. Whether these nuclei are called nuclei or spherules does, of course, not matter as long as we know that they are the integral parts of these cell-bodies and do not lie in an undivided general gelatinous layer as separate organs.

I have in this article refrained from bringing forward any support afforded to my standpoint by the pathological changes pecular to this layer which, I may add, seem to me to offer still greater and more powerful evidence against Johnson's opinion.

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## A NEW OPHTHALMIC RECORD BOOK.

BY L. R. CULBERTSON, M.D., ZANESVILLE, OHIO.

THERE are many ophthalmic record books on the market all of which, save one, are lacking in some particular. Ophthalmologists desire to get a large amount of data in as small a space as possible. Likewise they are too busy to keep several sets of books. Many record books require one to keep in addition a cash book. At my suggestion, Geo. L. Goodman & Co. (No. 9 Cliff Street), New York City, have made several changes and additions to their excellent ophthalmic record, so that they now have the best record of this kind on the market. It combines a case record with credit and debit sheet. One excellent feature is the urine record they have added at my suggestion. It is of the greatest importance that ophthalmologists should make a careful urinalysis in all cases of neuritis, retinitis, iritis, etc. In addition to this it has a table for three weeks' record of daily exercise of ocular muscles. Also record for esophoria, exophoria, etc.; tests with and without mydriatic on test-types; perimetric chart; chart of fundi and space for ophthalmoscopic report; chart for recording axes in retinoscopic test; frame measurements; age and addresses, etc.; general history and family history.

The book contains 600 pages (record for 300 cases) and each page is 10 x 13 inches.

# CLINICAL MEMORANDA.

By Adolf Alt, M.D., St. Louis, Mo.

## TWO CASES OF ATROPHY OF THE OPTIC NERVES AFTER TYPHUS ABDOMINALIS, ONE DUE TO A DEBILITATED CONDITION, THE OTHER TO MENINGITIS.

PATIENT, W. C., aged 19 years; had typhus abdominalis twice, first a year and again three months before consulting me about his eyesight. His physician brought him and from his statement there is little doubt as to a correct diagnosis and observation. After the second attack of typhus had spent its force, the patient noticed a gradual failure of sight in the left eye and for a week or two he noticed that the right eye was not as good as formerly.

I found V., R. E., to be $^{20}/_{XL}$?; L. E., $^{20}/_{LXX}$?. The visual fields were concentrically reduced, especially the left one. Color perception was good. The ophthalmoscopic picture was that of atrophy of the optic nerves, the retinal vessels were, however, not very thin.

As I had expected, the condition rapidly improved under treatment, consisting of strychnine injections and nitroglycerine given internally. After two weeks' treatment he was discharged with V., R. E., $^{20}/_{XX}$ + and L. E., $^{20}/_{XXX}$. The ophthalmoscopic picture was much the same as when I first saw him.

Miss. M. F., aged 39 years, came to consult me about her sight which was lost altogether four months previously during a very severe attack of typhus abdominalis. Although there had been a gradual improvement, she can not dare to walk unguided, and can not read or sew for any length of time.

I found her vision to be about $^{20}/_{L}$ in either eye.

Ophthalmoscopic examination showed the symptoms of

neuritic atrophy of the optic nerves. The right papilla was of a chalky whiteness, no small bloodvessels were visible, bare microscopic threads indicated the larger ones. The papilla, furthermore, was slightly excavated. Its nasal outline was indistinct, dirty gray and near it innumerable minute yellowish patches slightly pigmented were seen in the retina evidently occupying the outer layers of this membrane.

The left papilla was grayish-white, also slightly excavated, its outlines not distinct. The retinal bloodvessels were a little better visible than in the right eye. There were no pigmented spots in this retina.

Her visual fields were reduced to the point of fixation. Color perception bad.

Upon inquiry, her physician, Dr. G. Taphorn, of Alton, Ill., wrote me that her attack of typhus was accompanied by marked cerebral inflammation for about ten days. When the fever disappeared it was faund that she was totally blind.

She is still under the treatment of injections of strychnine and internally nitro-glycerine, yet, though slowly, she is gaining especially in her left eye. She has to-day $^{20}/_{xx}$ vision in either eye; but the right field is unchanged, while the left one is enlarged to about 10° on the temporal side. She reads Sn. 1 with + 1.25 D. easily, her chief trouble being the smallness of the fields and the consequent necessity of moving he head continually.

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## A CASE OF SYNCHISIS SCINTILLANS WITH NORMAL VISUAL ACUITY.

PATIENT, Mrs. A. M., aged 51 years, called on me simply for stronger reading glasses. She was not conscious of anything being wrong with her eyes. While she sat before me in good light, I thought I saw some glittering body behind the lens flitting through the pupillary area of the right eye as she moved her eyes. V. = $^{20}/_{xx}$ in either eye.

As I had examined her eyes carefully only three years previously and had not seen anything unusual in her eye at that time, I was greatly astonished to see now on ophthalmo-

scopic examination a beautiful sample of synchisis scintillans concerning only one, the right eye. Smaller and larger white, grayish-white and silvery crystals seemed to be dispersed throughout the vitreous body, bobbing up and down, and being thrown in a whirl, according to the movements of the eye.

The vitreous body showed no fibrillar tissue, the retina and choroid, so far as I could see, showed no pathological signs (the pupil was not dilated), but, what is rather astonishing, the lady was not even aware of anything peculiar in this eye. The eye was moderately hypermetropic and presbyopic. There had been no preceding affection, nor was there a known diathesis.

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## LACK OF ORBITAL FAT, CONGENITAL MICROPHTHALMUS, PERSISTENT PUPILLARY MEMBRANE AND FŒTAL TISSUE IN THE VITREOUS BODY.

PATIENT, Cl. B., aged 5 years, was brought to me on September 18. His eyes were very small and very deeply seated; the orbital fat being evidently undeveloped. Considerable nystagmus. V., R. = $^1/_{CC}$; L. = $^2/_{CC}$ excentrically; no central vision. With oblique illumination remnants of the fœtal pupillary membrane are found situated in the inner lower quadrant. The threads starting from the iris surface converge rapidly toward a broad apex which is attached to the anterior lens capsule near the anterior pole. Behind the lens a misty cloud could be seen moving in the vitreous body. After the pupils had been dilated, I found in either eye a silverish gray substance, starting from where the papilla would normally lie. This substance seems to grow in breadth as it projects into the vitreous body. It leaves but a small peripheral portion of the retina visible, although not all around. The tissue is translucent enough to permit of a dim vision of several larger bloodvessels and the whole moves rapidly with each motion of the eyes.

# SOCIETY MEETINGS.

## PRELIMINARY PROGRAMME OF THE WESTERN OPHTHALMOLOGICAL, OTOLOGICAL, LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION.

SECOND ANNUAL MEETING, ST. LOUIS, MO., APRIL, 8–9, 1897.
PLACE OF MEETING, "PLANTERS HOTEL.

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| PRESIDENT, | ADOLF ALT. |
| VICE-PRESIDENTS, | F. E. FRYER. |
| | J. H. MARTINDALE. |
| TREASURER, | W. L. DAYTON. |
| SECRETARY, | HAL FOSTER. |

THURSDAY, APRIL 8.—SESSION AT 9 O'CLOCK.

Address of Welcome, by Dr. W. J. Langan, President St. Louis Medical Society. Response, by D. A. C. Corr, President Illinois State Medical Society. President's Address, by Dr. Adolf Alt, St. Louis, Mo. Reception of guests. Registering and payment of dues. Report of the Secretary and Treasurer. Election of members.

A cordial invitation is extended to the profession. The railroads promised a one and one-third fare for round trip. When buying tickets ask for a certificate, on reaching St. Louis have it signed by Dr. Alt.

PRESENTATION OF PAPERS.

1. Hæmorrhagic Glaucoma, Illustrated by Microscopic Lantern Slides, Dr. Adolf Alt, St. Louis. 2. Report of Six Cases of Removal of Ossicles, Dr. Norval H. Pierce, Chicago, Ill. 3. A Pyramidal and Senile Cataract in One Subject, Report of a Case, Dr. Geo. F. Suker, Toledo, Ohio. 4. A case of Oculo-Motor Paralysis, Dr. Geo. E. Bellows, Kansas City, Mo. 5. Adenoid Vegetations, Dr. Ellet Orrin Sisson, Keokuk, Ia. 6. Some Observations Upon the Irritating Effects of Natural Gas Upon Trachoma, Dr. John John Kyle, Marion, Ind. 7. Treatment of Chronic Suppuration of the Middle Ear, Dr. S. S. Bishop, Chicago. 8. Astigmatism, Dr. Dudley S. Reynolds, Louisville, Ky. 9. Diseases of the Glosso-Epiglottic Space, Dr. J. F. Barnhill, Indianapolis, Ind. 10. The Classification of the Exudative Anginæ, Dr.

E. B. LaFevre, Abilene, Kans. 11. Skin-Grafting for Malignancy of the Orbit and Entropion, Dr. Flavel B. Tiffany, Kansas City, Mo. 12. Restoration of the Eyelids by Skin-Grafting, Dr. W. C. Tyree, Kansas City, Mo. 13. An Imyroved Skiascope, Dr. J. Ellis Jennings, St. Louis. 14. Scopolamine as a Mydriatic and Cyclopegic, Dr. Wm. S. Fowler, Chicago. 15. Optic Neuritis, Dr. C. F. Evans, Louisville, Ky. 16. Report of a Case of Congenital Membranous Cataract with Aphakia, Dr. A. S. Magee, Topeka, Kans. 17. Moderate Errors of Refraction; Shall We Always Correct Them? Dr. Albert E. Bulson, Ft. Wayne, Ind. 18. Conservatism in Rhinological Practice, Dr. B. M. Berens, Minneapolis, Minn. 19. Mental Depression and Prolonged Melancholia following Graduated Tenotomy and the Limitation of Prisms, Dr. W. H. Becker, Lynchburgh, Va. 20. Report of a Case of Double Mastoid Disease; Operation; Recovery, Dr. J. O. Stillson, Indianapolis Ind. 21. The Technique of Cataract Extraction, Dr. B. E. Fryer, Kansas City, Mo. 22. Diseases of the Labyrinth, Dr. J. Holinger, Chicago. 23. Keratoconus, Dr. J. W. Bullard, Pawnee, Neb. 24. A Case of Inflammatory Glaucoma of Reflex Nasal Origin, Dr. J. Aloysius Mullen, Houston, Tex. 25. Syphilitic Amblyopia, Dr. Robert F. Lemond, Denver, Colorado. 26. Congenital Nystagmus, Dr. J. Elliott Colburn, Chicago. 27. Objective Noises in the Ear, Dr. G. Sterling Ryerson, Toronto. Can. 28. Function of the Stapedius and Tensor Tympani Muscles, Dr. Thos. F. Rumbold, St. Louis. 29. Saline Injections in the Treatment of Cyclitis and Iritis, Dr. S. L. Ledbetter, Birmingham, Ala. 30. Paper, Dr. W. E. Gamble, Chicago. 31. College Instruction in Ophthalmology, Dr. A. M. Lapsley, Keokuk, Iowa. 32. The Value of Hypnotic Suggestion in Ophthalmic Practice, Dr. Ignatz Mayer, Guthrie, O. Ty. 33. Description of Dr. McCassy's Trial Frame, Lachrymal Style and Threaded Handle, Dr. J. H. McCassy, Dayton, Ohio. 34. The Lens Tester and Why Used, Dr. J. H. Johnson, Kansas City, Mo. 35. The Ætiology, Treatment and Prognosis in Exophthalmic Goitre, Dr. J. Fred Clark, Fairfield. Iowa. 36. Extraction of Bilateral Soft Cataract in the Case of a Child Three Years of Age, Dr. J. O. McReynolds, Dallas, Texas,

### FRIDAY, APRIL 9.

Election of Members. Election of Officers.

PAPERS.

1. Two Cases of Asthma, Due to Intra-Nasal Growths, Dr. W. W. Bulette, Pueblo, Colo. 2. Aural Pain, Dr. A. M. Howe, Wichita, Kans. 3. Influence of Vaporized Medicaments on the Respiratory Passages, Dr. Homar M. Thomas, Chicago. 4. Hysteria in Ophthalmology, Dr. W. L. Dayton, Lincoln, Neb. 5. Otitis Media Circumscripta, Dr. C. M. Holcomb, Winfield, Kans, 6. Ulcer of the Cornea, Dr. H. Z. Gill, Pittsburgh, Kans. 7. Paper, Dr. J. D. C. Hoit, Elmwood, Ill. 8. Paper, Dr. Frank Allport, Minneapolis, Minn. 9. Hypertrophic Rhinitis, Dr. W. T. Grove, Eureka, Kans. 10. The Relative Value of Enucleation and Evisceration, Dr. A. R. Amos, Des Moines, Iowa. 11. Paper, Dr. C. W. Kollock, Charleston, S. C. 12. A Plea for More Mild Treatment of the Conjunctiva, Dr. E. W. Ames, Canton, Ill. 13. Paper, Dr. Geo. Knapp, Vincennes, Ind. 14. Thrombosis of the Lateral Sinus, Dr. B.

F. Church, Dallas, Texas. 15. Notes on Nasal Surgery, Dr. A. E. Prince, Springfield, Illinois. 16. Paper, by Dr. K. K. Wheelock, Fort Wayne, Inddiana. 17. Paper, by Dr. Chas. H. Beard, Chicago, Illinois. 18. Treatment of Corneal Lesions by Hydraulic Curetting with Sublimate Solutions, Dr. C. H. Pleasants, Helena, Mont. 19. Paper and Demonstrations: Advanced Methods in Teaching the Deaf, Dr. M. A. Goldstein, St. Louis. Discussion opened by Prof. S. T. Walker, Jacksonville, Ill. 20. Three Cases of Suppuration of the Frontal Sinuses Treated by Means of the Air Douche, Dr. P. F. Gildea, Colorado Springs, Colo. 21. Toleration of the Eye to Severe Injuries, Dr. H. G. Sherman, Cleveland, Ohio. 22. A Case of Mastoiditis Complicating Purulent Otitis Media Cured by Enlarging the Drum Perforation and Syringing the Tympanic Cavity, Dr. Wm. Sheppegrell, New Orleans, La. 23. The Relationship of Obscure Throat Symptoms in Adults to the Pharyngeal Tonsil, Dr. H. Moulton, Ft. Smith, Ark. 24. Suppurative Inflammation of the Frontal Sinuses, Dr. Frank E. Sampson, Creston, Iowa. 25. Experiments on the Eustachian Tubes by Means of the Tongue Thrust Into the Naso-Pharynx, Dr. Hamilton Stillson, Seattle, Wash. 26. Atrophic Rhinitis, Dr. I. Cullen, Cincinnati, Ohio. 27. Artificial Membrana Tympani, Dr. E. W. Heltman, Toledo, Ohio. 28. Otitis Media, Dr. E. E. Singleton, Marshalltown, Iowa. 29. Paper, Dr. F. E. Waxham, Denver, Colo. 30. Throat Manifestation of Transmitted Syphilis, Dr. H. W. Whitaker, Columbus, Ohio. 31. Relative Value of the Various Treatments for Deafness Due to Otitis Media, Dr. J. F. Oaks, Chicago. 32. Eustachian Catarrh, Dr. M. Jaw Brown, Salina, Kans. 33. Nitrate of Silver, Dr. Chas. E. Walker, Denver, Colo. 34. Paper, Dr. J. H. Martindale, Minneapolis, Minn. 35. Paper, Dr. F. C. Heath, Indianapolis, Ind. 36. Paper, Dr. Francis Kellogg, Tacoma, Wash. 37. Paper, Dr. Allen T. Haight, Chicago. 38. Lymphadenom With Report of Cases. Dr. C. W. Parker, St. Louis. 39. Paper, Dr. D. Emmett Wel h, Grand Rapids, Mich.

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DR. GEORGE T. STEVENS has declined to continue the direction of the English edition of the *Annales d' Oculistique* which appeared monthly from January, 1895, until July, 1895, inclusive. Under Dr. Steven's able management this well-known French journal was made accessible to English readers who will all regret that the project to make an International journal had to be given up.

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THE ANNALS OF OPHTHALMOLOGY AND OTOLOGY for 1897 will be issued in two portions, the *Annals of Ophthalmology* as usual in January, April, July and October, and the *Annals of Otology* (including Rhinology and Laryngology), during the succeeding months of February, May, August and November. The January number under the new order is at hand and contains 212 pages devoted entirely to the eye.

# OPHTHALMIC DIGEST.

By J. Ellis Jennings, M.D., St. Louis, Mo.

DERMOID TUMORS OF THE CORNEA. A. R. Baker, M.D. (*Journal of the American Medical Association*, October, 17, 1896).

The author reports two cases of dermoid tumor of the cornea, and refers to the fact that Milvalsky (Prague) has reviewed the literature on the subject very carefully and has found recorded seventy-five cases of dermoid tumors of the eyeball. Seven of these he calls atypical, being connected with the eyelids. Five of the cases were entirely corneal, and twelve were situated on the sclerotic and fifty-one were placed partly on the sclerotic.

"The relation of these tumors to the conjunctiva varied. In some the conjunctiva seemed to be replaced by the tumor tissue; in others it covered the surface of the latter, while in most instances a portion of the growth was apparently covered by conjunctiva, while the remainder exhibited on the surface a pavement epithelium, papilla, hair follicles and fine hair. The cystic form or closed dermoid is never met with in the eye."

A review of the preceding cases seem to show that they are all congenital; a few may be located on the cornea alone, a few on the sclerotic but the largest number involved both structures and are found most frequently at the outer and lower sclero-corneal margin.

Van Dusyse's ingenious theory as to the origin of these tumors is not generally accepted, namely, that the amnion was at one time united and through constriction and separation, there remained at the original point of contact amniotic cells from which later the dermoid cysts developed. A more reasonable explanation of dermoid growths in other parts of the body, *i. e.*, an inversion of the epiblast during embryonic ex-

istence, and islet deposit of cells, which makes skin, sebaceous glands and hair follicle.

Little need be said as to treatment. Removal for cosmetic purposes is usually desirable. It does not seem to me that cauterizing the wound as recommended by most writers is necessary, and may only add to the amount of opacity present upon recovery. The same objection is true with regard to the advisability of covering the surface of cornea exposed with conjunctiva, recommended by some writers.

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CORNEAL MEASUREMENTS AFTER THE EXTRACTION OF CATARACT. ADOLPH O. PFINGST, M.D, Louisville, Ky. (*Archives of Ophthalmology*, July, 1896).

In selecting glasses for the aphakial eye, after the extraction of cataract, it is not an easy matter to decide just how much of the corneal astigmatism, which is always present in a higher or lower degree, should be neutralized with glasses. As the cornea gradually resumes its original or almost original shape by the contraction of the cicatrix, the cylinder glass frequently ceases to be of benefit. To avoid the expense of a new glass after this contraction has taken place, we are often called upon to prescribe at once the lens which we consider best for ultimate use. From an examination of 59 cases the author recapitulates as follows:

1. That two weeks after the flap extraction of cataract, there is corneal astigmatism varying from 1.75 D. with rule to 22.0 D. against rule.

2. That the greatest amount of this astigmatism disappears in the following four to six weeks.

3. That it is slowly reduced for six months, after which it seems there are no further changes.

Bearing these facts in mind it is evident that an accurate estimation of the ultimate glasses can not be made at the end of two weeks. It is, I think, the rule among ophthalmologists to give a temporary glass for three to four months, and allow cicatricial contraction to take place before deciding on the final glass. But even in selecting this temporary glass, being governed by our table, we may select it so as to do for permanent use. In cases with less than 5.0 D. of astigmatism, which

in four months is generally reduced to 1 or 2. D. we have usually prescribed the spherical lens which gave the best vision even though the addition of a cylinder lens was of benefit at the time. In cases with more than 5. D. and especially in those in which the wound had healed with complications, we add 2. D. cyl. with axis indicated by the ophthalmometer and the test glasses, provided the vision was improved.

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## A CASE OF TOTAL BLINDNESS; POSSIBLY DUE TO AN OVERDOSE OF QUININE.

H. BERT ELLIS B.A., M.D. (*Journal of the American Medical Association*, November 7, 1896).

August 8, 1895, I was called to J. W., a man 34 years old. After repeated questioning of the patient and his sister, the following disconnected, incomplete and probably somewhat inaccurated history was elicited:

The young man was an accountant in the employ of one of the Texas railroads and had been with them for years, although for some time he had been an opium, whiskey and tobacco habitué. The first habit he had contracted as a result of the use of opium during an attack of dysentery. Four years ago, he had gone to an institute and had been cured of these habits, but quickly lapsed into them again, excepting that he never renewed the use of tobacco.

I was unable to find out definitely the amount of morphine and whiskey that he used daily. His own statement was to the effect that he had been taking about seven grains of morphine daily. This statement was probably inaccurate, for judging from the amount it was necessary to give to keep him reasonably quiet, at the time I was called, he certainly could not have been taking less than from 10 to 20 grains in the 24 hours, and probably more for some months; and of whiskey he used from one pint to one quart daily.

In October 1894, when suffering from malaria, he had been given by a physician 120 grains of quinine in 24 hours in four doses. In a very short time he was totally blind in both eyes, but this condition lasted only about two weeks, after which there was a gradual return of vision, so that he resumed work on his books, and was able to continue at intervals by

the aid of an assistant (for his vision never became good), till February, 1895, since which time he had not been able to see anything, except to distinguish a bright light occasionally. There was no history of concurrent deafness.

During June and July he had been living with a woman who was an opium habitué and she had kept him constantly saturated with morphine till his sister brought him to Los Angeles.

The patient, 5 feet, 9 or 10 inches tall, was extremely emaciated, weighing about 103 pounds; his normal weight had been from 145 to 150. He had the marked opium cachexia and puffiness of lower lids. There was almost complete loss of the cutaneous and deep reflexes, the knee jerk being entirely absent. The bowels were sluggish, and the urine very scanty, 10 to 12 ounces in 24 hours. He was practically demented, his memory so defective that he could not sustain a conversation.

The pupils were so small that it was quite impossible, in his helpless condition, to make a satisfactory ophthalmoscopic examination, without producing mydriasis, which I did with a weak solution of sulphate of atropin, and found the fundi presenting very small deviations from the normal. Both nerves were pallid and the arteries and veins, though relatively normal, were both slightly reduced in size, no other changes could be detected.

The morphine was gradually diminished and codeine substituted, the whiskey slowly reduced, so that by November 1, he was taking no morphine or whiskey.

At different times, trional in 15-grain doses, chloralamide 30 grains, chloral and bromides 20 and 30 grains, and hyoscyamine $^1/_{30}$ grain, were given to quiet him. Sulphate of strychdine was administered, in gradually increased doses, from $^1/_{60}$ to $^1/_3$ grain three times daily, hypodermically, in the temples. The knee jerk and other reflexes returned. Occasionally he would describe quite accurately some object in the room, but these returns of vision were very transient. His intellect improved materially, as did also his physical condition. About November 1, he had two quite marked convulsions, and we decreased the strychnine. The patient died in December, of bronchitis and œdema of the lungs; a condition not unlike senile bronchitis.

Was this a case of toxic amblyopia? and if so, was it due to quinine, morphine, or whiskey?

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## A CASE OF CHRONIC GLAUCOMA WITH SOME UNUSUAL FEATURES.

ROBERT L. RANDOLPH, M.D. (*Annals of Ophthalmology and Otology*, October, 1896).

T. W. S., healthy man 61 years of age. Four years ago he consulted me about his right eye. I found the cornea the seat of a haze which was so dense as to render quite indistinct the outlines of the pupil. He told me that this haze made its appearance every day, usually an hour after breakfast, and in two hours this cloud had become so dense as to make reading with that eye impossible. This haziness now began to fade away and in two hours the cornea was perfectly clear. The clouding appeared to involve the substance proper of the cornea and was uniformly distributed. There had been no pain, the ocular conjunctiva was absolutely free from congestion and with the exception of the cornea the eyeball seemed perfectly normal. It was impossible to see the fundus, so he was told to return that evening after the cloud had passed away, though I must confess that I was rather skeptical of any such result. He came back that night at 8 o'clock and the cornea was absolutely clear and bright. The ophthalmoscope showed a high grade of myopia at least 10 D. There was glaucomatous cupping of discs, but this condition was not by any means striking. The fundus as a whole resembled that which we generally see in very high grades of myopia. With his myopia corrected his vision in his affected eye was $^{20}/_{XL}$, while the vision in the other eye was nearly $^{20}/_{XX}$.

I prescribed eserine gr.j to ℥j to be used three times daily. This controlled the attacks completely and I lost sight of him until November, 1895. He said that for the past four years he had never noticed the clouding in the slightest degree during the spring and summer months, but each autumn the clouding was noticed, but it never lasted long, as he promptly resorted to the eserine. In November, 1895, the haze returned and he came to see me with the right cornea so opaque as to resemble a case of interstitial keratitis. The eserine even in a stronger solution producing no effect, an iridectomy was done.

Vision before the operation $^{20}/_{CC}$, after $^{20}/_{XL}$. A month after the operation on his right eye the haze was seen for the first time before the other eye and the condition was characterized by the same periodicity. He consented to an iridectomy which was performed. The striking features in the case are:

1. The density of the clouding which exceeded anything of the kind that I had ever seen in glaucoma. Tension was elevated during these attacks and he was conscious of a dull pain in the temples.

2. The periodical nature of the attacks which came on at about the same time every day and passed away at about the same time. The fact, too, that he was entirely free from attacks during the warm weather though he was not using the eserine.

3. The co-existence of myopia and that too of such high grade. He is now wearing: R. E. — 10 D. ⌒ — 1.25 D. c. ax. 180°; L. E. — 10 D ⌒ — 1.25 D. c. ax. 180°.

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LENTICULAR MYOPIA AS A CAUSE OF SO-CALLED "SECOND SIGHT." D. B. St. John Roosa, M.D. (*N. Y. Medical Record*, January 2, 1897)

A great deal more is said among the laity than in the profession about the ability of old people to read without glasses. Very many of the people who are able to read fine type in old age without glasses are simply short-sighted. The myopia is not of hight degree and although it may have existed from a very early age, is not generally recognized, because such persons are generally able to go about, see large objects and even recognize faces at some distance without glasses. But there is quite a number of cases, not myopic originally, in which the patient after middle life discards the ordinary glasses for presbyopia, and reads for years without glasses. Lenticular myopia occurs in such eyes; that is to say, the lens becomes more convex by swelling. This swelling. however, if it simply produce capacity to read fine type without glasses, is not attended with opacity; cataract does not occur, although, as is well known, all opaque lenses become increased in refractive power. The condition now spoken of is, so to speak, an abortive cataract, a swelling of the lens without opacity. The following case illustrates what happens in all cases of this class:

Sarah X. consulted me on April 29, 1878, with reference to glasses. She was rather a delicate woman, 41 years of age. Her eyes were watery. She had worn glasses for reading for three years.

Vision was $^{20}/_{XL}$ in the right eye, $^{20}/_{XL}$ — in the left eye. With a glass of + 1.12 D., the vision became $^{20}/_{XX}$ in each eye, and with a convex glass of 4.00 D. she could read Jaeger No. 1 at eight inches. These glasses did very well for eight years, when she again consulted me. She was then able to read No. 1 Jaeger at eight and three-fourths inches with her glasses.

On October 19, 1896, the patient again came under my observation. She said she had not used glasses for reading for more than a year, because she could read very easily without them. The vision in the right was $^{20}/_{LXX}$. With — 2 D. it became $^{20}/_{XXX}$. In the left eye her vision was $^{20}/_{CC}$, and with a — 3 D. it became $^{20}/_{XL}$. She had but half a dioptre of corneal astigmatism, with the rule. With + 2 D. she could read No. 1 Jaeger at eight inches with the right eye, being an increase in the refractive power of exactly that, as it was a glass of 4 D. that she formerly used for reading. With the left eye she could read No. 1 Jaeger fluently at eight inches with no glass, and ordinary type very easily.

The ophthalmoscope showed absolutely no lesion—the lenses were clear, the retina was sound. It is reported as a case of lenticular myopia, occurring after middle life, producing ability to read without glasses. It is a fair type of quite a proportion of cases of second sight, although, as was said in the beginning, most old people who are able to read fine print without convex glasses, are usually myopic, and have acquired no new capacity by the advance of age.

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## SUBCONJUNCTIVAL INJECTIONS IN THE TREATMENT OF CERTAIN DISEASES OF THE EYE.

By WILLIAM H. WILDER, M.D. (*Medicine*, December, '96.)

This method consists in the injection beneath the conjunctiva of two or three minims of a 1:1000 solution of corrosive sublimate or cyanide of mercury. This is done after anæsthetizing the eye with a four per cent. solution of cocaine by introducing a sterilized hypodermic needle beneath the con-

junctiva of the eyeball eight or ten millimetres away from the cornea.

During the last three years I have had frequent opportunities of using this treatment and have come to regard it as a powerful adjunct to the old methods in some diseases of the eye. Interstitial keratitis and sympathetic ophthalmia, in my experience, have not been relieved by this measure. It is efficacious in diseases of the iris and choroid of all varieties, when adhesions do not yield to atropine and antiphlogistic measures. In virulent acute cases it seems to be contraindicated until there has been some abatement of the inflammation.

It is not to be supposed that this means is to be employed to the exclusion of other well known and valuable remedies, and in a case of iritis we would not omit the atropine, hot compresses, leeches, constitutional treatment, etc., that experience has shown, are invaluable. It is not a panacea, but, as Gepner remarks, "it is an excellent method of treatment in those cases in which the administration of mercurials is indicated."

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## COLOR SCOTOMA IN ALBUMINURIC RETINITIS.

By HOWARD F. HANSELL, M.D. (*Philadelphia Polyclinic*, November 21, 1896).

Contrary to my previous experience and to positive statements in the most authoritative text-books, a case of albuminuric retinitis recently observed had the characteristic symptom of toxic amblyopia, namely, central color blindness. The general symptoms of interstitial nephritis were pronounced. The typical appearances of the retinitis of nephritis—the star-shaped figure in the macula, white circular plaques scattered here and there throughout the retina, a few minute hæmorrhages and moderate swelling of the nerves—were present. Vision equalled $^{20}/_{CC}$, not improved by glasses. For a circular space measuring 10 to 15 degrees around the point of fixation on the perimeter, there was in each eye an absolute blindness for all colors, although the white test was perceived with the readiness consistent with the diminished acuity of vision. The existence of the color scotoma warranted the suspicion of either a cortical complication or that the patient was in the last stages of kidney disease when the blood became so loaded

with poisonous metabolisms, that we were dealing with a true toxic amblyopia. The assumption of Nuel (*Arch. d' Ophtal.*, March and August, 1896) that atrophy of the macular fibres in the optic nerve, persistently found in retro-bulbar ueuritis, of toxic origin, is consecutive to atrophy of the retinal elements in the macular region and is not the primary change, would seem to be supported by the existence of a color scotoma in our case, since the macular region in each eye was invaded by the changes common to albuminuric retinitis. No doubt the cells of the maculæ themselves were the seat of the minute grayish spots of exudation that have been described among the ophthalmoscopic signs of toxic neuritis. The death of the patient from interstitial nephritis six weeks after the ocular examinasion was made, strengthens the conclusion that the loss of color perception can be ascribed to disease of the maculæ and macular fibres in the optic nerves of uræmic origin. If examination of a sufficient number of patients in the last stages of Bright's disease confirms the observation made in this single case, the discovery of central scotoma would form an important indication of the speedy approach of a fatal termination.

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REMARKS ON THE MANAGEMENT OF GLAUCOMA. By LEARTUS CONNOR, M.D. (*Journal of the American Medical Association*, August 26, 1896)

In concluding a paper on this subject the author says: In the management of glaucoma, such attention should be given the bowels, skin and kidneys as to secure the most prompt and complete elimination of the effete tissue metamorphosis. The diet should be so regulated as to admit only such articles and in such quantities, as can be perfectly digested. The liberal use of water internally and externally greatly assists in restoring the fluids of the body to a state of reasonable purity. The continuance of such diet and mode of life affords the largest hope of preventing future glaucomatous attacks.

Such medicines should be employed as are called for to remove the constitutional dyscrasia found in each case, as arthritic, gouty, syphilitic, etc.

In simple glaucoma with no increase of tension such treatment may suffice; but should there develop increased tension,

diminished visual field, pain, shallowed anterior chamber, myotics should be first employed (if they can be constantly watched) and if they keep the symptoms under control, nothing farther is called for. But if they are not well borne, or if at the end of a month, the visual field has diminished, then an iridectomy should be done. If the tension still persists, a sclerotomy should be performed and myotics again employed.

In acute inflammatory glaucoma, the tension must be promptly reduced by general treatment and myotics if possible, but if these do not act immediately in reducing the ocular tension and in keeping it reduced, an iridectomy must be promptly done.

Subacute glaucoma is managed along the same lines as the acute except that operative action may be delayed a longer time, though the rule should not be deviated from which demands an iridectomy in all cases that grow worse under general management and myotics.

Chronic glaucoma is managed in the same manner as the subacute except that iridectomy is contraindicated in cases of degeneration of the iris, the results of the operation in such cases being unfavorable.

Absolute glaucoma is treated only to relieve pain, if salicylate of soda fails, the treatment is exclusively surgical, sclerotomy, iridectomy and enucleation.

Hæmorrhagic glaucoma is rarely benefited by any operation, owing to the weakened condition of the bloodvessels within the eyeball. Hence if general and local medication fail, and pain persists, enucleation is the only resource.

Secondary glaucoma calls for specific treatment according to the condition inducing it. If it be an intraocular tumor, enucleate the eye; if it be a lens swollen from discission, extract the same and so through the list.

Finally, he who would do the most for a case of glaucoma, must not only be able to quickly detect the disease in the form of its acute exacerbation; to apply the local remedies or do the operation which will quickest and surest restore the normal intra-ocular currents; but he must be able to recognize the constitutional dyscrasia, underlying such acute attack and put in operation the wisest measures for its mitigation or removal.

## PAMPHLETS.

"Infantile Dysauxesis." By C. Fisch, M.D.

"Syphilis of the Nose." By N. H. Pierce, M.D.

"Remarks on the Management of Glaucoma." By Leartus Connor, M.D.

"The Sphenoidal Cavity and Its Relation to the Eye." By C. R. Holmes, M.D.

"A Brief Note on a Perfected Series of Testwords, etc." By Ch. A. Oliver, M.D.

"Epithelioma. Removal. Plastic Operation for New Eyelid." By J. L. Minor, M.D.

"Gonorrhœal Iritis and Non-Suppurative Gonorrhœal Conjunctivitis." By W. Cheatham, M.D.

"Submucous Linear Cauterization. A new Method for Reduction of Hypertrophies of Conchæ." By N. H. Pierce, M.D.

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## MISCELLANY.

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Dr. Wendell Reber has moved from Pottsville to 1208 Spruce Street, Philadelphia.

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Dr. H. V. Würdemann has removed his office to 128 Wisconsin Street, Milwaukee, Wis.

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From the *Medical Record* we learn that Dr. Pagenstecher, of Wiesbaden, has been called to England by Queen Victoria, who is suffering from failing vision.

## TO THE GENTLEMEN INTENDING TO ATTEND THE MEETING OF THE WESTERN OPHTHALMOLOGICAL, OTOLOGICAL, LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION, APRIL 8 AND 9, 1897.

DEAR SIR:—Through the courtesy of the Central Passenger Committee persons attending the meeting of the Western Ophthalmological, Otological, Laryngological and Rhinological Association, to be held at St. Louis, Mo., April 8 and 9, 1897, will be granted a reduction in their return railroad fare only, under the following circumstances and conditions:

FIRST. Each person must purchase (not more than three days prior to the date of the meeting nor later than two days after the first day of the meeting) a first-class ticket (either unlimited or limited) to the place of meeting, for which he will pay the regular tariff fare of not less than 75 cents, and upon request the ticket agent will issue to him a certificate of such purchase properly filled up and signed by said ticket agent

SECOND. If through tickets can not be procured at the starting point, the person will purchase to the nearest point where such through tickets can be obtained, and there purchase through to place of meeting, requesting a certificate properly filled out by the agent at the point where each purchase is made.

THIRD. It is absolutely necessary that a certificate be procured, indicating that full fare of not less than 75 cents has been paid for the going journey. It likewise determines the route via which the ticket for return journey will be sold, and *without it no reduction will be made*, as the rule of the Committee is that "No refund of fare can be expected because of failure of the parties to obtain certificates."

FOURTH. Tickets for the return journey will be sold by the ticket agents at the place of meeting at one-third the first-class limited fare, only to those holding standard certificates signed by the ticket agent at point where through ticket to the place of meeting was purchased, countersigned by the secretary of the convention, certifying that not less than one hundred persons holding standard certificates are present, and that the holder has been in attendance upon the convention, and viséed by special agent of the railway association requiring the last named supervision.

FIFTH. Tickets for return journey will be furnished only on certificates procured not more than *three days* before the meeting assembles, nor later than *two days* after the first day of the meeting, and will be available for continuous passage only: no stop-over privileges being allowed on tickets sold at less than regular unlimited fares. Certificates will not be honored unless presented within *three days* after the date of adjournment of the convention. It is understood that Sunday will not

be reckoned as one of the three days either before the opening date, or after the closing date of meeting. No certificate will be honored if issued in connection with children's half-fare tickets, on account of Clergy, Charity, Employes, or at less than regular agreed first-class fare.

SIXTH. Ticket agents will be instructed that excursion fares will not be available unless the holders of certificates are properly identified, as above described, by the secretary or clerk, on the certificate, which identification includes the statement that one hundred or more persons, who have purchased full-fare tickets of not less than 75 cents each, for the going passage, and hold properly receipted certificates, have been in attendance at the meeting, and by the stamp and signature of special agent of the railway association. A violation of the rules in certifying that the stipulated number was in attendance, when actually a less number of properly executed standard certificates were presented, will debar the offending organization from the further courtesies of this Committee.

SEVENTH. The certificates are not transferable, and the signature affixed at the starting point compared with the signature to the receipt, will enable the ticket agent to detect any attempted transfer. A transfer or misuse of certificates or tickets authorized under this rule will forfeit all privileges granted.

EIGHTH. A guarantee has been given the Central Passenger Committee, to redeem at full fares any return tickets procured by persons in attendance at this meeting that may be found to have been transferred, misused or offered for sale.

N. B. Please read carefully the above instructions, be particular to have the certificates properly filled and certified by the railroad agent from whom you purchase your going ticket to the place of meeting, as the reduction on return will apply only to the point at which such through ticket was purchased. Yours truly,

February, 1897. A. ALT, M.D., President.

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THE OPHTHALMIC RECORD. January, 1897. This is the first number of a new series of this well-known periodical formerly edited by Dr. G. C. Savage, of Nashville, Tenn. It is now published in Chicago and under the editorship of Dr. C. A. Wood with an able staff of co-editors and collaborators. We congratulate the *Record* on its revival and wish it success and prosperity.